

REMARKS

Claims 1-4, 8, 10-11, 14-17, 19-21, 23, 25, 27-28, 30 and 32 have been amended. Claims 5-7, 9, 12-13, 18, 22, 24, 26, 29, 31 and 33 have been canceled. New claim 34 has been added to round out the scope of the claimed subject matter. No new matter has been introduced. Applicants reserve the right to pursue the original and other claims in this and in other applications.

Claims 1, 3 and 4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rene. The rejection is respectfully traversed.

Claim 1 recites a surgical fluid pump system for transporting a sterile fluid from a source to a surgical instrument. The claim 1 system comprises “a drive system; and a pump system.” The pump system comprises “an inlet for establishing a fluid connection to said source; an outlet for establishing a fluid connection to said surgical instrument; a pump having a piston that contacts said sterile fluid to apply a pressure to said sterile fluid, said pump having a suction cycle for drawing in the sterile fluid and an output cycle for ejecting the sterile fluid; and conduit and valve devices that provide a sterile fluid path between said inlet, said pump and said outlet.” According to claim 1, “the pump system is releasably connected to the drive system, and said drive system drives said pump system in such a way that said suction cycle is shorter than said output cycle and that said fluid is supplied to said outlet with a substantially constant pressure.” Applicants respectfully submit that Rene does not disclose, teach or suggest the claim 1 invention.

Initially, Applicants note that Rene does not relate to or suggest a surgical fluid pump system having a drive system and a pump system, which is releasably connected to the drive system. Moreover, Rene fails to teach a surgical fluid pump system having a sterile fluid path between an inlet, a pump and an outlet thereof. Accordingly, Applicants respectfully submit that claim 1 is allowable over Rene. Claims 3 and 4 depend from claim 1 and are allowable along with claim 1. The rejection should be withdrawn and the claims allowed.

Applicants also take the opportunity to discuss the deficiencies other cited references in relation to amended claim 1. Moutafis, for example, fails to teach or suggest the claimed piston that

contacts the sterile fluid to apply a pressure thereto. Instead, Moutafis' piston 60 pressurizes a working fluid that acts on a deformable diaphragm 86 that seals the sterile fluid from the piston and that forms part of a pumping chamber 94 that pumps the sterile fluid (cf., Figs. 2 and 3). As such, Moutafis fails to teach or suggest the claim 1 invention for at least this additional reason. Atkinson fails to teach at least the claimed feature that the suction cycle is shorter than the output cycle as well as the feature that the fluid is supplied to the outlet with a substantially constant pressure. Instead, the sole Atkinson piston is operated at a frequency of 7 to 40 cycles per second (see col. 9, lines 4-15).

Although Rene has been cited as teaching such features (cf., the final paragraph on page 2 of the Office Action), it is unlikely that a person skilled in the art would consult Rene in seeking to improve upon the Atkinson or Moutafis devices. As set forth above, Rene does not relate to a surgical fluid pump system. Instead, Rene solely discloses pumping concrete and consequently does not address any of the aspects that are crucial for a surgical fluid pump system such as ease of operation, supreme reliability, sterility, low noise and user safety. Accordingly, Applicants respectfully submit that a person skilled in the art would not consult Rene in seeking to improve upon the Atkinson device. Moreover, even if one skilled in the art were to consult Rene, which they would not, it is not determinable what specific motivation they could find therein to modify the Atkinson device in a manner falling within the scope of claim 1.

These are additional reasons why the claims should be allowed.

Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rene in view of Moutafis. The rejection is respectfully traversed. The claims have been canceled, rendering this rejection moot.

Claim 9 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Rene in view of Ishimoto. The rejection is respectfully traversed. The claim has been canceled, rendering this rejection moot.

Claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Murali. The rejection is respectfully traversed. The claim has been canceled, rendering this rejection moot.

Claim 13 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Murali in view of Ishimoto. The rejection is respectfully traversed. The claim has been canceled, rendering this rejection moot.

Claims 2, 8, 10, 11, 14-25 and 27-32 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rene in view of Murali and Atkinson. The rejection is respectfully traversed.

Claim 2 recites a surgical fluid pump system for transporting a sterile fluid from a source to a surgical instrument. The claim 2 system comprises “a drive system; and a disposable pump system.” The disposable pump system comprises “an inlet for establishing a fluid connection to said source; an outlet for establishing a fluid connection to said surgical instrument; three pumps, each pump having a piston that contacts said sterile fluid to apply a pressure to said sterile fluid, each of said pumps having a suction cycle for drawing in the sterile fluid and an output cycle for ejecting the sterile fluid; and conduit and valve devices that provide a sterile fluid path between said inlet, said pumps and said outlet.” According to claim 2, “the pump system is releasably connected to the drive system, and said drive system drives said pump system in such a way that the suction and output cycles of said pumps overlap one another.” Applicants respectfully submit that claim 2 is allowable over the cited combination.

Initially, Applicants note that Rene and Murali both fail to teach or suggest a surgical fluid pump system having a drive system and a disposable pump system that is releasably connected to the drive system. Moreover, Rene and Murali both fail to teach or suggest a surgical fluid pump system having a sterile fluid path between an inlet, a pump and an outlet thereof. Accordingly, Applicants respectfully submit that Rene and Murali, even when considered in combination, fail to teach or suggest the subject matter of independent claim 2.

Applicants respectfully submit that Atkinson fails to teach or suggest at least the feature that the disposable pump system comprises three pumps as well as the feature that the drive system

drives the pump system in such a way that the suction and output cycles of the pumps overlap one another. These features are also not taught or suggested by Rene and Murali.

At lines 12-13 of page 5 of the Office Action, the Examiner acknowledges that Rene fails to teach that the suction and output cycles overlap. Furthermore, as is readily apparent from Rene Fig. 1, the device thereof comprises two, not three, pumps. Accordingly, Rene cannot bridge the gap between the teachings of Atkinson and the subject matter of the independent claim 2.

Murali does not relate to a surgical fluid pump system. Instead, Murali relates to a pumping apparatus for use in the oil and gas industry; in particular, to a high pressure, high flow-rate pumping system (col. 1, lines 16-17 and col. 3, line 16-17). Accordingly, Applicants respectfully submit that a one skilled in the art would not consult Murali to improve upon the device of Atkinson. Moreover, even if one skilled in the art were to consult Murali, it is not determinable what specific motivation he/she could find therein to modify the Atkinson device in a manner falling within the scope of claim 2 without compromising fundamental features of the Atkinson device, *e.g.*, its sterility and disposability.

Accordingly, Applicants respectfully submit that claim 2 is allowable over the cited combination. Claims 8, 10, and 11 depend from claim 2 and are allowable along with claim 2. The rejection should be withdrawn and the claims allowed.

Claim 14 recites a surgical fluid pump system for transporting a sterile fluid from a source to a surgical instrument. The system comprises “a drive system; and a pump system.” The pump system comprises “an inlet for establishing a fluid connection to said source; an outlet for establishing a fluid connection to said surgical instrument; first and second pumps, each of said first and second pumps having a piston that contacts said sterile fluid to apply a pressure to said sterile fluid, each of said pumps having a suction cycle for drawing in the sterile fluid and an output cycle for ejecting the sterile fluid; and conduit and valve devices that provide a sterile fluid path between said inlet, said first and second pumps and said outlet.” According to claim 14, “the drive system drives said pump system in such a way that, for each of said first and second pumps, the suction

cycle is shorter than the output cycle and in such a way that the output cycles overlap, the pump system is releasably connected to the drive system, and said pump system is constructed as a disposable unit.” Applicants respectfully submit that claim 14 is allowable over the cited combination for at least the reasons set forth above and on its own merits. Claims 15-17 depend from claim 14 and are allowable along with claim 14.

Claim 19 recites a surgical fluid pump system for transporting a sterile fluid from a source to a surgical instrument. The system comprises “a drive system; and a pump system.” The pump system comprises “an inlet for establishing a fluid connection to said source; an outlet for establishing a fluid connection to said surgical instrument; at least three pumps, each of said pumps having a piston that contacts said sterile fluid to apply a pressure to said sterile fluid, each of said pumps having a suction cycle for drawing in the sterile fluid and an output cycle for ejecting the sterile fluid; and conduit and valve devices that provide a sterile fluid path between said inlet, said pumps and said outlet.” According to claim 19, the pump system is releasably connected to the drive system, and the drive system drives said pump system in such a way that, for each of said at least three pumps, the suction cycle is shorter than the output cycle.” Applicants respectfully submit that claim 19 is allowable over the cited combination for at least the reasons set forth above and on its own merits. Claims 20, 21, 23, and 25 depend from claim 19 and are allowable along with claim 19.

Claim 27 recites a surgical fluid pump system for transporting a sterile fluid from a source to a surgical instrument. The claim 27 system comprises “a drive system; and a pump system.” The pump system comprises “an inlet for establishing a fluid connection to said source; an outlet for establishing a fluid connection to said surgical instrument; at least three pumps, each of said pumps having a piston that contacts said sterile fluid to apply a pressure to said sterile fluid, each of said pumps having a suction cycle for drawing in the sterile fluid and an output cycle for ejecting the sterile fluid; and conduit and valve devices that provide a sterile fluid path between said inlet, said pumps and said outlet.” According to the claim, “the pump system is releasably connected to the drive system, and the drive system drives said pump system in such a way that the suction and output cycles of the pumps overlap one another.” Applicants respectfully submit that claim 27 is

allowable over the cited combination for at least the reasons set forth above and on its own merits. Claims 28, 30, and 32 depend from claim 27 and are allowable along with claim 27.

Claims 26 and 33 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rene in view of Murali, Atkinson and Ishimoto. The rejection is respectfully traversed. The claims have been canceled, rendering this rejection moot.

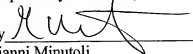
New independent claim 34 relates to a disposable surgical fluid pumping device. Claim 34 recites, among other things, that a portion of the sterile fluid path from the inlet to a respective one of the pumps is common to a portion of the sterile fluid path from the respective one of the pumps to the outlet.

Of the prior art documents of record, only Moutafis and Atkinson teach a disposable surgical fluid pumping device. However, neither Moutafis nor Atkinson teaches that a portion of a sterile fluid path from an inlet [of the disposable surgical fluid pumping device] to a pump is common to a portion of the sterile fluid path from the pump to an outlet [of the disposable surgical fluid pumping device]. Instead, both Moutafis and Atkinson teach a fluid path from an inlet to a pump that is separate from the fluid path from the pump to an outlet (cf., Figs. 4 and 5 of Atkinson and Fig. 3 of Moutafis). The claimed feature, which is missing from the cited art, simplifies the structure of the disposable surgical fluid pumping device and thus reduces its cost.

In view of the above, Applicants believe the pending application is in condition for allowance.

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Respectfully submitted,

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